

DOCKETED

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Project Title:	2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
TN #:	224125
Document Title:	06.22.18 Email from John Farrell - Comments on Adopted Rooftop Solar Mandate
Description:	In response to a recent comment received on your recently adopted rooftop solar mandate as part of 17-BSTD-02: 2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking
Filer:	Jann Mitchell
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Submitter Role:	Public
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From: John Farrell <jfarrell@ilsr.org>

Sent: Friday, June 22, 2018 12:23 PM

To: McDonnell, Kathleen@Energy; Parrow, Donna@Energy; Awolowo, Ollie@Energy; Cross, Catherine@Energy; Shelley, Monica@Energy

Subject: Evidence suggests rooftop solar competes well

Dear Commissioners,

I'm writing in response to a recent comment received on your recently adopted rooftop solar mandate as part of 17-BSTD-02: 2019 Title 24, Part 6, Building Energy Efficiency Standards Rulemaking.

The conventional wisdom in electricity generation is that scale matters. But this outdated notion rests on the assumption that electricity generators compete only in the wholesale market. California's nearly 1 million solar roofs already producing power provide the factual counterpunch to this myth, but so does ample research on the economies of scale and the price of competition in the wind and solar markets.

The attached 2-page summary of [Is Bigger Best?](#), a report by the Institute for Local Self-Reliance, illustrates the misconceptions inherent in comparing utility-scale to community-scale or on-site renewable energy generation. In short, **price comparisons between utility-scale and rooftop solar ignore that the two do not compete**. Amazon Prime's free shipping wouldn't pretend to compete with the USPS if it didn't deliver to the door, and neither should utility-scale solar pretend to compete with rooftop systems.

Furthermore, rooftop solar democratizes the economic returns of a clean energy system, allowing many residents and businesses to own a slice of the energy economy formerly reserved for utility shareholders, and supporting local businesses that provide everything from accounting to tax preparation to advertising for the local solar industry.

California's rooftop solar mandate is a landmark decision to lower the cost of solar ownership, to lower the cost of home ownership, and to support local economies. It will be an excellent complement to large-scale renewable energy systems that compete in separate markets.

Sincerely,
John Farrell

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Energy Democracy Director and "[guru of distributed energy](#)"

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Host of [Local Energy Rules](#)

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Is Bigger Best in Renewable Energy?

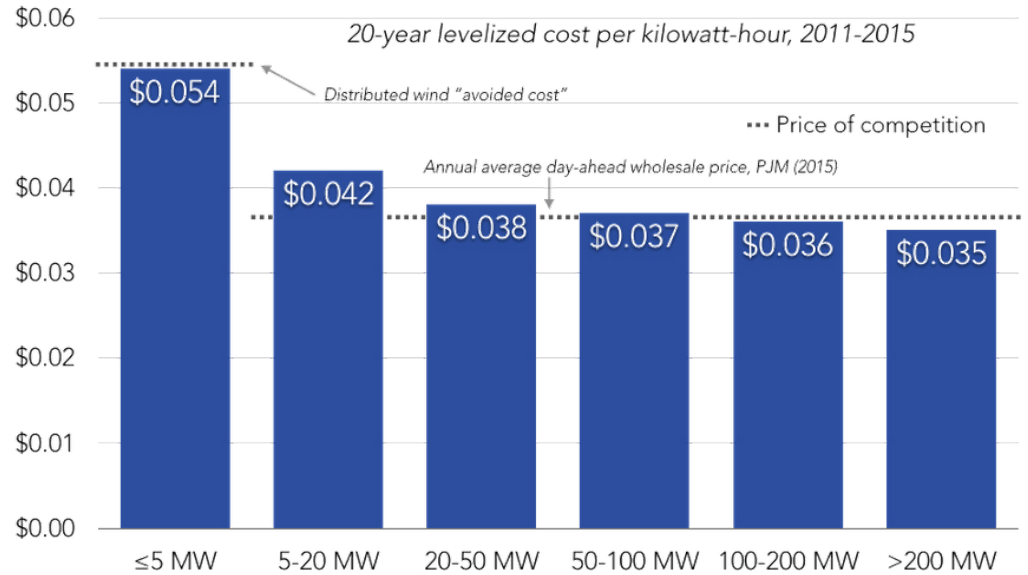
Conventional wisdom suggests the biggest wind and solar power plants will be cheapest, but where they deliver power, and who will own them, matters more.

John Farrell, September 2016

Limits to Scale in Wind:

- Most of the economies of scale in producing wind electricity are from scaling up from 1-2 turbines to about 10.
- Local delivery of distributed wind can compete with avoided costs at the distribution level just as large projects can at the wholesale level.

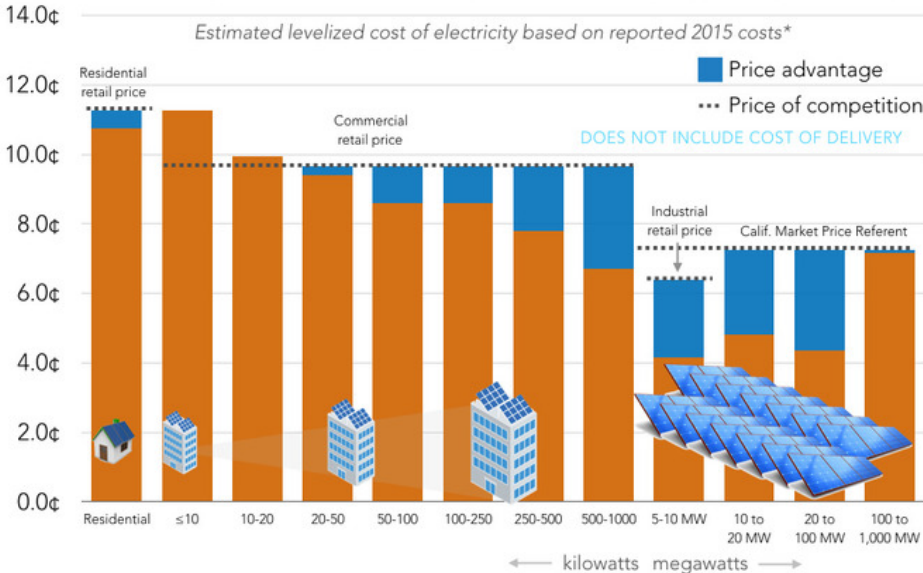
WIND PRICES V. THE MARKET



Source: Wind Technologies Market Report

Limits to Scale in Solar:

SOLAR COMPETES AT MOST SIZES



- Solar power is competitive at nearly any scale, if compared to the price of its competition. (Note: figures for large-scale solar do not include transmission costs.)
- Community solar projects may hit the sweet spot for competitive solar, capturing economies of scale but delivering power locally.

Sources: Tracking the Sun IX and Utility-Scale Solar 2015 (SunShot, Berkeley Labs); EIA (2014 data); CPUC (2011); NYMEX (2016); ILSR

Is Bigger Best in Renewable Energy?

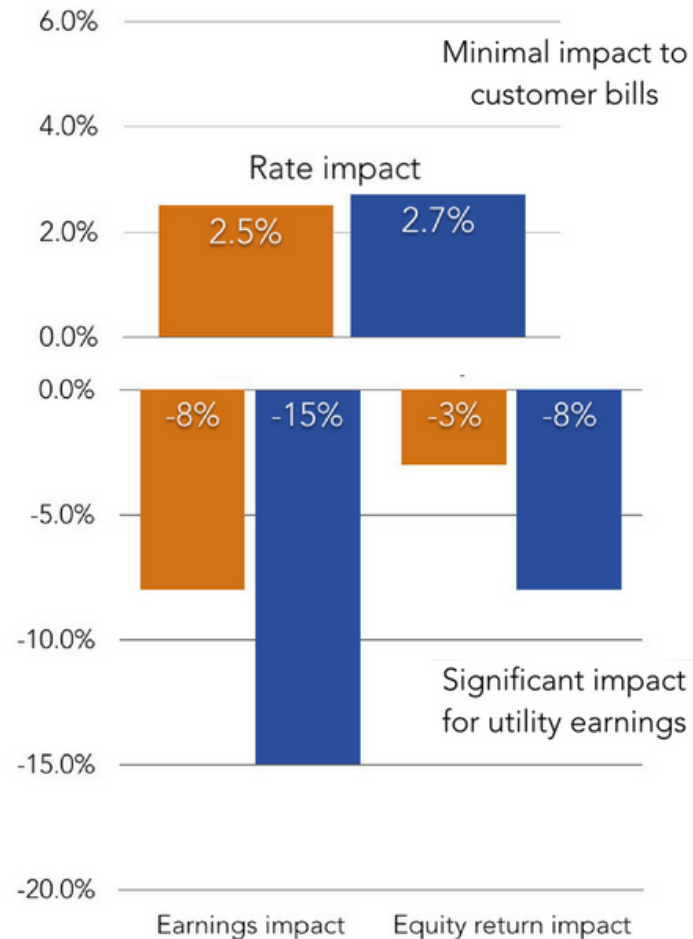
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Why Economics Isn't The Issue:

- The proper size of solar is a proxy fight: Distributed solar isn't at odds with utility-scale solar as much as it runs counter to the traditional utility business model.
- The question is whether our regulatory and business models are capable of most effectively seizing technology of the 21st century to create an efficient and reliable electricity system AND whether the profits from participating are distributed according to their value to the system, rather than a legacy of control.

BOTTOM LINE of 10% customer-owned solar



Source: Berkeley Labs, 2014

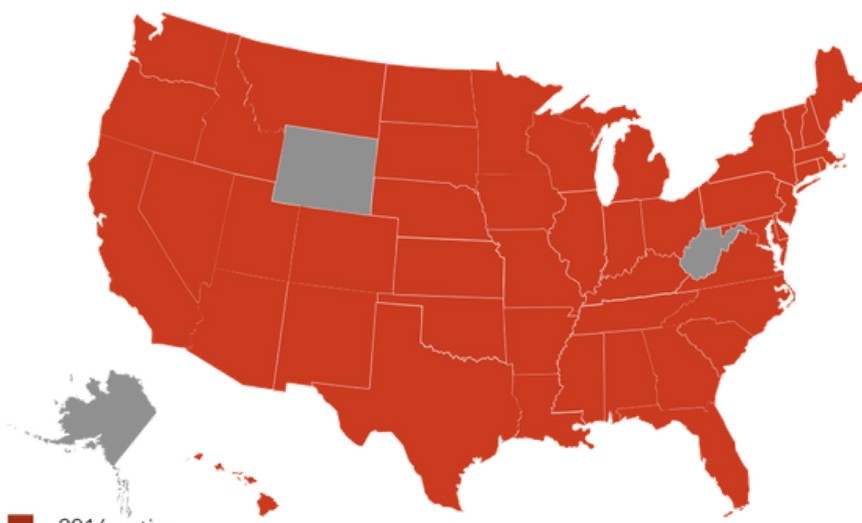
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FREEDOM TO GENERATE UNDER FIRE

■ STATES FACING CHALLENGES TO DISTRIBUTED POWER



■ - 2016 action
■ - No recent action

February 2017

ILSR INSTITUTE FOR Local Self-Reliance

Source: The 50 States of Solar: Q4 2016, NC Clean Energy Technology